

CLAIMS

1. A mobile telephone comprising a body and a bending wave loudspeaker mounted to the body which comprises a panel-form member capable of supporting bending waves and a transducer mounted to the panel-form member to excite bending wave vibration in the panel-form member to produce an acoustic output, wherein the body defines an open-faced cavity and the panel-form member is movable between a first position in which the panel-form member covers the open face of the cavity, and a second position in which the panel-form member is spaced away from the cavity.

2. A mobile telephone according to claim 1, wherein with the panel-form member in the first position, a volume of air is enclosed in the cavity, the cavity being configured to define rear boundary conditions of the loudspeaker that ensure the loudspeaker has a desired bandwidth when operating with the panel-form member in the first position.

3. A mobile telephone according to claim 2, wherein the cavity and the panel-form member form a coupled system with coupled modes.

4. The mobile telephone according to claim 1, claim 2 or claim 3, wherein the body acts as a baffle for the loudspeaker when the panel-form member is in the first position.

5. A mobile telephone according to claim 1, wherein with the panel-form member in the first position, the mobile phone is usable in hands-free conference mode.

6. A mobile telephone according to claim 1, wherein with the panel-form member in the second position, the mobile phone is usable in handset mode.

7. A mobile telephone according to claim 4, wherein the cavity is sealed by a resilient member disposed between the panel-form member and the body when the panel-form member is in the first position.

8. A mobile telephone according to claim 7, wherein the cavity is sealed to prevent acoustic radiation from leaking from the cavity.

9. A mobile telephone according to claim 7, wherein the resilient member is a ring of foamed plastic or rubber.

10. A mobile telephone according to claim 9, wherein the resilient member is mounted in a groove on the body.

11. A mobile telephone according to claim 7, wherein the resilient member is mounted in a groove on the body.

12. A mobile telephone according to claim 7, comprising a screen mounted in the body, the panel-form member comprising a transparent portion whereby the screen is visible with the panel-form member in the first position.

13. A mobile telephone according to claim 12, wherein the transducer is mounted at a marginal position on the panel-form member and is spaced away from the transparent portion so as not to obscure a user's view of the screen.

14. A mobile telephone according to claim 13, wherein a narrow wall at least partially surrounds the transparent portion and projects from a surface of the panel-form member.

15. A mobile telephone according to claim 14, wherein the wall projects from the surface of the panel-form member that faces the cavity when the panel-form member is in the first position, and supports the resilient member.

16. A mobile telephone according to claim 1, wherein the panel-form member is a resonant member, and the transducer causes the panel-form member to resonate to act as an acoustic radiator.

17. A mobile telephone according to claim 1, comprising a screen mounted in the body, the panel-form member comprising a transparent portion whereby the screen is visible with the panel-form member in the first position.

18. A mobile telephone according to claim 17, wherein the transducer is mounted at a marginal position on the panel-form member and is spaced away from the transparent portion so as not to obscure a user's view of the screen.

19. A mobile telephone according to claim 18, wherein a narrow wall at least partially surrounds the transparent portion and projects from a surface of the panel-form member.

20. A mobile telephone according to claim 19, wherein the wall projects from the surface of the panel-form member that faces the cavity when the panel-form member is in the first position, and supports the resilient member.

21. A mobile telephone according to claim 17 or claim 18, wherein the panel-form member is a resonant member, and the transducer causes the panel-form member to resonate to act as an acoustic radiator.

22. A mobile telephone according to claim 21, wherein the panel-form member and the transducer also act together as a microphone.

23. A mobile telephone comprising a body and a bending wave loudspeaker pivotally mounted to the body which comprises a resonant panel-form member capable of supporting bending waves and a transducer mounted to the panel-form member to excite bending wave vibration in the panel-form member to cause the panel-form member to resonate to produce an acoustic output, wherein the body defines an open-faced cavity and the panel-form member is hinged at its edge to the body and is movable between a first position in which the panel-form member covers the open face of the cavity to enclose a volume of air in the cavity, and a second position in which the panel-form member

is spaced away from the cavity, the cavity being configured to define rear boundary conditions of the loudspeaker that ensure the loudspeaker has a desired bandwidth when operating with the panel-form member in the first position.

24. A mobile telephone according to claim 23, comprising a screen mounted in the body and visible through the open face of the cavity, the panel-form member comprising a transparent portion whereby the screen is visible through the transparent portion with the panel-form member in the first position.

25. A mobile telephone according to claim 24, wherein the transducer is mounted at a marginal position on the panel-form member and is spaced away from the transparent portion so as not to obscure a user's view of the screen.

26. A mobile telephone according to claim 25, wherein a narrow wall at least partially surrounds the transparent portion and projects from the surface of the panel-form member that faces the cavity when the panel-form member is in the first position.

27. A mobile telephone according to claim 26, wherein the cavity is sealed by a resilient member disposed between the panel-form member and the body when the panel-form member is in the first position.

28. A mobile telephone according to claim 27, wherein the wall supports the resilient member.

29. A mobile telephone according to claim 23, wherein the panel-form member and the transducer also act together as a microphone.